

REMARKS

Claims 1 and 3-20 are pending in the present application.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3, 6-9 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Taguchi (US 5,332,365, hereinafter referred to as “**Taguchi ‘365**”) in view of **Hirota** (US 6,394,761); claims 4 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Taguchi ‘365** in view of **Hirota**, and further in view of **Burkett** (US 6,688,853); claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Taguchi ‘365** in view of **Hirota**; claims 15 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Taguchi ‘365** in view of **Hirota**; and claims 1 and 10-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Taguchi (US 5,165,863, hereinafter referred to as “**Taguchi ‘863**”) in view of **Hirota**.

Favorable reconsideration is requested.

(1) Applicants respectfully submit that Taguchi ‘365 in view of Hirota and Taguchi ‘863 in view of Hirota do not teach or suggest:

wherein, when the solenoid is energized, the first and second plungers attract each other with magnetic force via the pressure-sensing member to become an integral member which is attracted by a core

as recited in claim 1.

The Office Action acknowledges that neither Taguchi ‘365 nor Taguchi ‘863 disclose the feature that when the solenoid is energized, the first and second plungers attract each other with magnetic force via the pressure-sensing member to become an integral member which is

attracted by a core. (Office Action, pages 8 and 10.) The Office Action cites Hirota for disclosing this feature.

In Hirota, valve element 25 is always pushed against diaphragm 24 with spring 28 without temporarily separating from the diaphragm 24 and is axially moved together with the diaphragm 24 and a movable iron core (plunger) 23 of a solenoid by the displacement of the diaphragm 24. The displacement of diaphragm 24 depends on the pressure P_s of the suction chamber and the force of compression coil spring 28 acting on the upper surface of diaphragm 24 and the solenoid force (in the case of energization of the solenoid), the force of compression coil spring 27 and the ambient pressure acting on the lower surface of diaphragm 24.

The Office Action takes the position that valve element 25 of Hirota corresponds with the “second plunger” as recited in claim 1 and cites Hirota at Col. 3, lines 10-15. (Office Action, pages 8 and 10.)

However, valve element 25 is not magnetically attracted to moveable iron core 23 to form an integral member when the solenoid is energized; and Hirota at col. 3, lines 10-15, merely states that pressure P_s acts on valve element 25 in the same direction as compression coil spring 28 which is opposite to the force generated by compression coil 27 minus the attraction force of moveable iron core 23 to fixed iron core 22. (Col. 3, lines 10-15.) This passage neither states nor implies that moveable iron core 23 is magnetically attracted to valve element 25 to form an integral member which is attracted by the core. Valve element 25 does not receive magnetic action under any condition because valve element 25 is arranged outside the closed loop of the line of magnetic force generated by magnetic coil 21.

The Office Action also takes the position that claim 1 does not require that a magnetic force be the only force which causes attraction between the first and second plungers. (Office Action, pages 14-15.) The Office Action is correct that the claim does not exclude other forces of attraction. However, claim 1 explicitly requires a magnetic attractive force between the first and second plungers, and none of Taguchi '365, Taguchi '863 or Hirota disclose first and second plungers that become an integral member when a solenoid is energized due to an attractive magnetic force between the first and second plungers.

(2) Applicants respectfully submit that Taguchi '863 in view of Hirota does not teach or suggest "wherein shock-absorbing means is disposed between the pressure-sensing member and the first plunger" as recited in claim 10.

The shock-absorbing means as recited in claim 10 is necessary for the pressure-sensing member and the first plunger attracting and colliding with each other when the solenoid is energized.

The Office Action cites circular plate 482 as corresponding to the shock-absorbing means as recited in claim 10. (Office Action, page 9.)

In the control valve of Taguchi '863, third coil spring 491 and first coil spring 470 keep a contact state between circular plate 482, diaphragm 418, and rod 460. Circular plate 482, diaphragm 418, and rod 460 do not separate from each other nor collide with each other. Therefore, a shock-absorbing means for absorbing impact in collision is not necessary for the control valve of Taguchi '863 and Taguchi '863 does not include such a shock-absorbing means.

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For at least the foregoing reasons, claims 1 and 10 are patentable over the cited references, and claims 3-20 are patentable by virtue of their dependence from claim 1. Accordingly, withdrawal of the rejection of claims 1 and 3-20 is hereby solicited.

In view of the above remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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